Circaea 8(1) (1991 for 1990), 9-15 ISSN 0268-425X

Notes on the skull of a 17th century horse from Chichester, West Sussex, U.K.

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Summary

Osteometric study of an excavated equid skull from Chichester, West Sussex, U.K., has yielded information on the size and general (facial) appearance of a male horse from the post medieval period. This animal pre-dates the crossing of English equine stock with imported Arab horses—which took place throughout the late 17th and 18th centuries—and so will form a useful basis for comparison with the later, much-modified horses when their skeletal remains are recovered from archaeological sites in Britain.

Introduction

Excavations carried out at 14/15 East Street, Chichester, West Sussex, in 1984, directed by Alec Down FSA, uncovered a post-medieval refuse deposit. Amongst the material recovered from this context was an intact horse skull, which is dated by the associated pottery to the mid/late 17th century. This skull was subsequently donated to the Booth Museum of Natural History, Brighton, and under that museum's catalogue scheme was assigned the registration number (osteological collections) 101241.

Although a detailed study was made of this specimen by the author (who was then working at the Booth Museum), the results of this research have until now remained unpublished; the main purpose of these notes is therefore to bring this find to the wider attention of fellow archaeozoologists and others interested in the early development of British equine stock.

Our knowledge of horses in Sussex in the post-medieval period is at best very scanty. Their importance in the agricultural economy is certainly well documented—as has been discussed by Kerridge (1968, 51–3) who observed that "About Chichester ... not many oxen were reared and then only to draw wains, for horses were more suited to the hilly fields and roads and were generally employed in ploughing, mostly in teams of four". Despite their obviously important role there is, however, no evidence for the existence of a well-defined (distinctive) local type as there was, for example, in East Anglia at this time where a "specialist farm horse or punch" was produced (ibid., 318). Sussex farmer Leonard Mascall, who farmed near Lewes in the late 16th century and was author of *The Governmente of Cattell* (1587), gave advice on the selection of horses with the right coat colour, but made no mention of the size or conformation of the local animals. Even as late as the 1800s, at a time when horses in other counties such as Lincolnshire were undergoing significant improvement (see Bewick 1790, reprinted 1980, 10), the horses of Sussex apparently remained isolated from the attentions of the livestock improvers, and the Rev. Arthur Young in his survey of Sussex reported that "The horses employed in the husbandry of the county have nothing in them which deserves particular notice" (Young 1813, 376).

In the absence of any available surviving contemporary descriptions of Sussex horses in the 17th century (or indeed later times), the Chichester skull has provided useful insight into the size and general appearance of at least one of these post-medieval animals.

Osteological description

(i) Age and sex of the horse

Using the criteria of incisor wear described in the booklet published by the American Association of Equine Practitioners (1966), and by comparison with the series of illustrations of incisor wear in horses given in HMSO (1908, 35–45), the age at death of the Chichester horse is estimated between seven and eight years. The presence of well-developed canine teeth indicates that this animal is male or castrate: in the female these teeth are either rudimentary or entirely absent (Scott and Bray Symons 1964).

(ii) Dental anomaly

Both right and left upper rows of cheekteeth have an additional rudimentary 'wolf tooth' in

Fig. 2. Horse skull from Chichester: right lateral view.

Table 1. Measurements (in mm) of the horse skull from 14/15 East Street, Chichester, West Sussex. Collections of the Booth Museum of Natural History, Brighton, reg. no. 101241. Measurement codes follow von den Driesch 1976.

Code	Measurement	
1	Profile length	553
2	Condylobasal length	545
3	Basal length	513
3a	Basilar length	508
8	Viscerocranium length	318
9	Upper neurocranium length	176
10	Facial length	390
21	Length of the diastema (*excluding* P1)	93.5
22	Length of cheektooth row (*excluding* P1)	183
34	Width across the occipital condyles	95.4
38	Greatest neurocranium width	104
41	Greatest brow width	221
43	Facial width	195
45	'Snout' width	77.2
47	Least width of the diastema	67.0
48	Maximum palatal width	136
50	Maximum (basion) skull height	118
	Upper right third molar: length	26.4
	breadth	23.4

Table 2. Size of the Chichester horse skull in comparison with modern specimens in the collections of the Booth Museum of Natural History, Brighton, and the British Museum (Natural History). Basal length is von den Driesch's (1976) measurement 3.

	Basal length (mm)
Post-medieval:	
Chichester, mid 17th century	513
Modern:	
Booth Museum collections, Sussex horses of unknown history (reg. nos.):	
100866	542
101226	500
101614	553
British Museum (Natural History) collections:	
Shire stallion, Blaisdon Conqueror reg. no. H14	604
Shire stallion, Prince William reg. no. H8	598
Shire mare, Starlight reg. no. H20	595
Thoroughbred male, Royal Hampton reg. no. H31	525
White Arabian stallion, Skowrone reg. no. 1937.1.26.7	474
Arab male, Little Joker reg. no. H40	482
Arab male, Dwarka reg. no. 1924.5.4.1	492

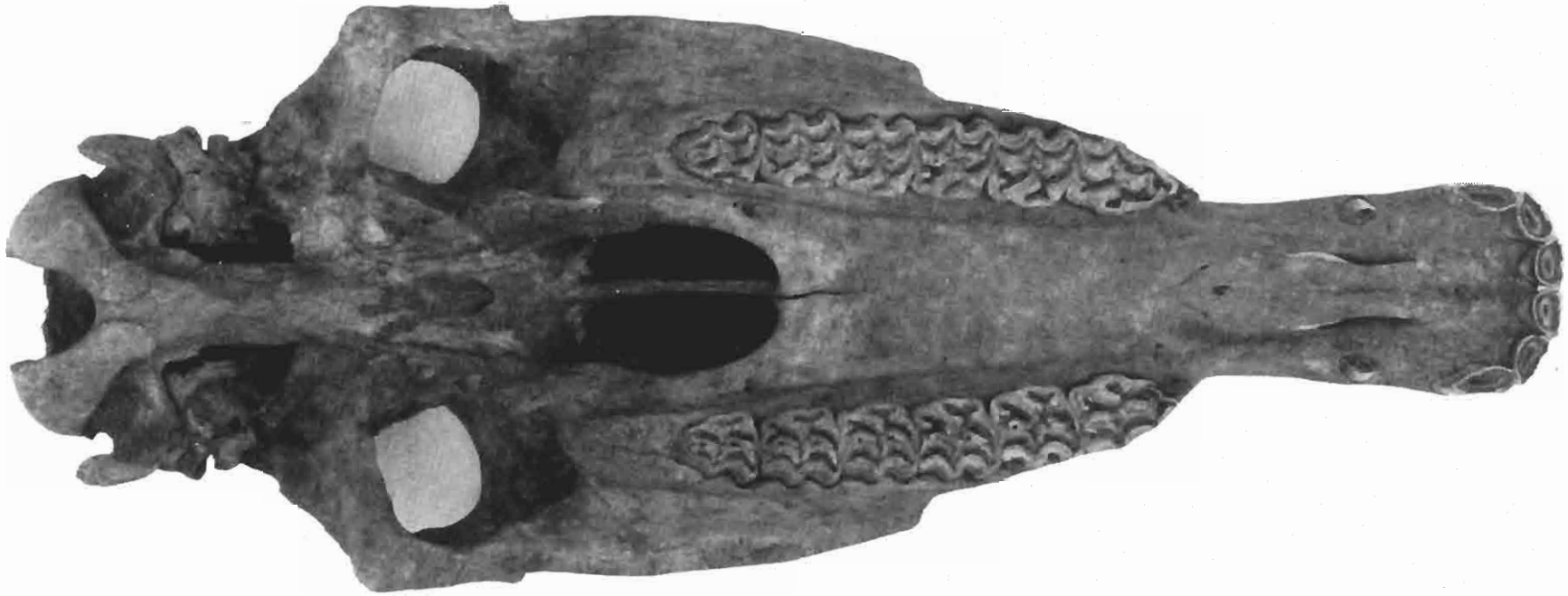

Fig. 3. Horse skull from Chichester: ventral view.

front of the second premolar. In his discussion of horse skulls from Hungarian archaeological sites, Bökönyi (1974, 291) states that this tooth is found rarely in modern domestic horses and where it does appear it is considered a form of atavism. According to Simpson (1951, 181–9) this additional tooth is a relic of the first premolar, which in extinct equids never played a part in the masticatory process and so was lost in the evolutionary development of their dentition. Despite Bökönyi's assertion that 'wolf teeth' *rarely* occur in modern domestic horses, Colyer (1936, 141) mentions that in 173 female skulls examined there were 37 cases of this condition (21.4% of the sample) and in 208 male skulls there were 31 cases (14.9%). Examination of a series of Sussex horse skulls in the Booth Museum collections revealed that one of the three specimens (reg. no. 101226, a female) also had 'wolf teeth'.

(iii) Size of the skull

A summary of the measurements taken of the Chichester skull is given in Table 1 and some comparisons with modern specimens are presented in Table 2.

(iv) Shape and general appearance of the skull

Viewed from the lateral aspect, the dorsal profile of the Chichester skull appears virtually straight, and may be compared with those horse skulls which are dished or convex in profile.

As discussed by Luff (1982, 205–14), various workers have devised morphometric indices for analysing equid skulls, and two of the more widely used of these have been applied in the study of the Chichester skull (see Table 3).

According to the classification scheme proposed by Nobis (1962) the value for the frontal index (43.5%) places the Chichester horse in the 'average-broadforehead' category (defined as those skulls with indices in the range 42.6-45.0%); skulls in the narrowforehead and broadforehead categories respectively have indices below 42.5% and above 45.0%). The calculated value for the craniofacial index (45.1%) indicates that the face of the Chichester horse was of average length relative to cranial length.

Discussion

Apart from the presence of 'wolf teeth', the Chichester horse skull is, perhaps, unremarkable, in that it does not exhibit any distinctive morphological features such as an unusually broad forehead relative to length or an unusually short and narrow face. However, the specimen is of historical value as it represents an example of the older, largely unimproved stock of British horses in the period immediately prior to their transformation from crossing with imported Arabian 'hot-blooded' horses. The first such crossings took place in the latter half of the 17th century (Clutton-Brock and Burleigh 1979, 192) and continued throughout the 18th century to produce the ancestors of the modern racehorse. During the same period in Britain, certain regional types of horses, such as the Black Horse of Lincolnshire, underwent significant improvement, as documented by Bewick (1790, reprinted 1980, 10–15).

It is to be hoped that future excavations of post-medieval sites in Britain will yield examples of skulls of these later, much-altered late 17th and 18th century horses, and the Chichester skull may then form a useful basis

Table 3. Values obtained for two common craniometric indices based on measurements of the Chichester horse skull. Measurement numbers in parentheses are those given by von den Driesch (1976).

Index	Method of calculation	Result
Frontal Index (after Bökönyi 1974; referred to as Cephalic Index by Osborne 1912)	100 x Frontal width (41) /Basilar length (3a)	43.5%
Cranio-facial Index (after Osborne 1912)	100 x Length of cranium (9) /Length of face (10)	45.1%

for comparative study with these specimens, thereby making a contribution to our understanding of the stages in the historical development of horse breeding in Britain.

Acknowledgements

I wish to express my sincere thanks to Alec Down FSA for kindly allowing me to study the Chichester horse skull and for helpful discussion on its archaeological dating. My thanks also go to Dr Juliet Clutton-Brock for allowing me to measure and examine the comparative horse skulls in the collections of the BM(NH), and to Jeremy Adams (Booth Museum of Natural History, Brighton) and Dr Rosemary Luff (Department of Archaeology, University of Cambridge) for their help.

The photographs were taken by Fred Woodley, Booth Museum of Natural History, Brighton.

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Revised manuscript received: August 1989